

Virginia Department of Health

Botulism: Overview for Healthcare Providers

Organism	<ul style="list-style-type: none"> • Toxin from <i>Clostridium botulinum</i>, an anaerobic, spore-forming bacterium • Strains of <i>Clostridium baratii</i> and <i>Clostridium butyricum</i> can also produce botulinum toxin • Of 7 recognized subtypes of neurotoxins (A–G), only types A, B, E, and rarely F cause human disease. • Naturally-occurring forms: <u>foodborne</u>; <u>intestinal</u>; <u>infant</u>; <u>wound</u> • Forms if used as a weapon for bioterrorism: <u>inhalation</u> or <u>foodborne</u>
Reporting to Public Health	Suspected or confirmed cases require <u>immediate</u> notification to the local health department (LHD). See www.vdh.virginia.gov/LHD/index.htm .
Infectious Dose	A few nanograms of toxin
Occurrence	<ul style="list-style-type: none"> • Botulism occurs worldwide, but the incidence is low. • In US, ~10–30 outbreaks and ~110 cases reported annually; in VA <3 cases reported annually.
Natural Reservoir	Include soil, honey, marine sediments, and the intestinal tracts of animals, including fish.
Route of Infection	<ul style="list-style-type: none"> • During a bioterrorism event, release could be in the form of an aerosol or through intentional contamination of food or water; inhalation botulism does not occur naturally • Unintentional exposure occurs through ingestion of toxin (foodborne) or spores (intestinal; infant) in food or through contamination of wounds (e.g., with botulinum spores found in soil)
Communicability	Botulism is not transmissible from person to person.
Risk factors	<ul style="list-style-type: none"> • All persons are susceptible. • Foodborne: foods most commonly contaminated are home-canned vegetables, cured pork and ham, and smoked or raw fish • Intestinal: risk is higher if have an immunocompromised condition, altered GI anatomy or altered microflora because of antimicrobial use. • Infant (<12 months of age): consumption of honey or corn syrup. • Wound: risk is higher if injection drug user
Case-fatality Rate	Case-fatality rate is approximately 5% – 10%.
Incubation Period	Depends on form of botulism: <ul style="list-style-type: none"> • Foodborne: 12–36 hours (range 6 hours–10 days) • Intestinal and infant: unknown • Wound: approximately 7 days (range 4–21 days) • Inhalation: approximately 12–80 hours
Clinical Description	<ul style="list-style-type: none"> • Symmetrical cranial neuropathies resulting in visual disturbances and difficulty speaking and/or swallowing • Neurological findings: ptosis, diplopia, blurred vision, dilated or nonreactive pupils, dysarthria, dysphonia, and dysphagia. Descending, flaccid paralysis occurs, beginning in ocular and other cranial nerve functions, extending to trunk and limb muscles and leading to respiratory failure • Infants with botulism appear lethargic, feed poorly, are constipated, and have a weak cry and poor muscle tone. May resemble “failure to thrive” or “floppy baby”.
Differential Diagnosis	<ul style="list-style-type: none"> • For adults: Guillain-Barré syndrome, myasthenia gravis, cerebrovascular accident, bacterial and/or chemical food poisoning, tick paralysis, chemical intoxication (e.g., carbon monoxide), mushroom poisoning, poliomyelitis, and psychiatric illness • For infants: sepsis, meningitis, electrolyte-mineral imbalance, Reye’s syndrome,

	congenital myopathy, Werdnig-Hoffman disease, and Leigh disease
Radiography	Infant botulism may present with dilated colonic loops by radiography.
Specimen Collection and Laboratory Testing[†]	<ul style="list-style-type: none"> • Acceptable specimens include: serum (10cc), stool, enema, gastric aspirate or vomitus, tissue or exudates, suspected food samples (if available). Stool and serum are specimens of choice. See details at http://www.asm.org/images/PSAB/Botulism_July2013.pdf • [†]If botulism is suspected, notify LHD immediately to discuss the case and laboratory testing. Specimens should be sent to Division of Consolidated Laboratory Services (DCLS) <u>after</u> LHD has been consulted and testing has been approved by LHD/DCLS. The DCLS Emergency Duty Officer can be reached 24/7 at (804) 335-4617.
Treatment*	<ul style="list-style-type: none"> • Meticulous supportive care, including respiratory and nutritional support. • Infant botulism is treated as soon as possible after clinical diagnosis with intravenous human derived immune globulin (BabyBIG®); to obtain BabyBIG®, contact the California Department of Public Health (24-hour telephone: (510) 231-7600, www.infantbotulism.org/). Note that in a bioterrorism attack, human-derived botulism antitoxin should not be administered. • For noninfant forms of botulism, Heptavalent Botulinum Antitoxin (HBAT) should be administered as soon as possible after clinical diagnosis. Antitoxin is available only from CDC after consultation with local/state health department. <p>*For additional information on dosing, please consult the package inserts.</p>
Postexposure Prophylaxis	None. Antitoxins are not useful for preventive purposes.
Vaccine	Currently, there is no licensed vaccine for commercial use.
Infection Control	<ul style="list-style-type: none"> • Use standard precautions; patients do not need to be isolated. • Those known to have eaten incriminated food should be kept under close medical observation.